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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,290	01/02/2002	Andreas Kanitz	P-01,0300	9714

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EXAMINER
ROY, SIKHA

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 09/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/937,290	KANITZ ET AL.	
	Examiner	Art Unit	
	Sikha Roy	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-14,17-22 and 25-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-14,17-22 and 25-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

The Amendment, filed on July 15, 2003 has been entered and is acknowledged by the Examiner.

Cancellation of claims 15,16 and 23,24 and the new claim 29 have been entered.

Specification

The disclosure in Substitute Specification is objected to because of the following informalities:

Page 10 line 2, '$LiBa_3$' should be replaced with -- $LiBaF_3$--.

Appropriate correction is required.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12-14,17-22,25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0869701 to Kanai et al.

Regarding claim 29 Kanai discloses (column 3 lines 50-58 Fig. 1) an organic electroluminescent component comprising a substrate 1, transparent bottom electrode 2 arranged on the substrate, a top electrode 5 composed of a metal inert to oxygen and moisture (column 12 lines 15-57) an organic electroluminescent layer 3 between the bottom and top electrodes and a charge carrier injection (cathode interface layer) 4 comprising a complex metal salt (complex halide compound). Kanai further discloses (column 9 lines 46-56, column 11 lines 1-12) the complex metal salt performing a role of improving the adhesion between the cathode and the organic layer and preventing diffusion of the cathode material into the organic fluorescent layer, can be represented by $A_pM_qX_r$ wherein A is one element selected from metal elements of Group 1A and 2A of the Periodic Table, M is at least one element selected from metal elements of Groups 3A and 3B, preferably aluminum, gallium, indium or a lanthanide metal, and as A and M two or more metal elements may respectively be used and X is a halogen atom particularly preferably fluorine and each of p,q and r which are independent of one another is an integer from 1 to 20.

Claim 29 differs from Kanai in that Kanai does not exemplify the nine complex metal salts.

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute in the formula $A_pM_qX_r$ for the charge carrier injection layer of Kanai, with Li (lithium, an element from Group 1A) as A, Al (from Group 3B) as M and Fl as X with p=1, q=1 and r= 4 and obtain the complex salt $LiAlF_4$. Furthermore it is obvious that the complex metal salts disclosed by Kanai as preferable halide

compounds having the same compositional formula $A_pM_qX_r$ are chemically equivalent to the claimed nine metal salts with respect to performing the role of improving the adhesion between the cathode and the organic layer and preventing diffusion of the cathode material into the organic fluorescent layer.

Regarding claim 12 Kanai et al. disclose (column 12 lines 48-57) top electrode (cathode) composed of a metal such as aluminum, silver, gold or platinum.

Referring to claims 13 and 21 Kanai et al. disclose (Fig. 1) the charge carrier injection layer (cathode interface layer) 4 is arranged between the top electrode (cathode) 5 and uppermost organic layer 3.

Regarding claims 14 and 22 Kanai et al. disclose (column 11 lines 51-53) the charge carrier injection layer (cathode interface layer) comprising thickness from 0.2 to 20 nm.

Regarding claims 17 and 25 Kanai et al. disclose (Fig. 2) two organic function layers 3a and 3b are arranged between the bottom (anode) electrode 2 and top (cathode) electrode 5, where the conducting layer 3a(hole transport layer) is located on the bottom electrode 2 and a layer 3b containing fluorescent dye is located on the conducting layer.

Regarding claims 18 and 26 Kanai et al. disclose (column 5 lines 9-55) that the conducting layer (hole transport layer) contains a material selected from N'-diphenyl-N, N'-bis(3-methylphenyl)biphenyl, polymer having a triphenylamine structure and the

emissive layer contains metal complex such as aluminum complex of 8-hydroxyquinoline (Alq_3).

Regarding claims 19 and 27 Kanai et al. disclose (column 1 lines49,50) the bottom electrode (anode) composed of indium tin oxide (ITO).

Regarding claims 20 and 28 Kanai et al. disclose (column 7 lines 32-37) an electron transport layer 3b arranged on the organic hole transport layer.

Response to Arguments

Applicant's arguments filed July 15, 2003 have been fully considered but they are not persuasive. In response to applicants' argument that references do not teach or suggest the nine salts recited in the claim 29 (previous claims 16 and 24) the examiner respectfully disagrees. Kanai et al. discloses (column 9 lines 46-56, column 11 lines 1-12) the complex metal salt can be represented by $A_pM_qX_r$ wherein A is one element selected from metal elements of Group 1A and 2A of the Periodic Table, M is at least one element selected from metal elements of Groups 3A and 3B, preferably aluminum, gallium, indium or a lanthanide metal, and as A and M, two or more metal elements may respectively be used and X is a halogen atom particularly preferably fluorine and each of p, q and r which are independent of one another is an integer from 1 to 20.

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute Li (lithium, an element from Group 1A) as A, Al (from Group 3B) as M and Fl as X with p=1, q=1 and r= 4 in the compositional formula of $A_pM_qX_r$ for the charge carrier injection layer suggested by Kanai and obtain the complex salt $LiAlF_4$.

The Examiner notes that those nine salts may not be cited in the list of the preferred complex halides compounds of Kanai et al. but they are indeed suggested by Kanai et al. in the general compositional formula $A_pM_qX_r$. Furthermore it is obvious that the complex metal salts disclosed by Kanai as preferable halide compounds having the same compositional formula $A_pM_qX_r$ are chemically equivalent to claimed nine metal salts as they perform the same role as those of the nine claimed salts of improving the adhesion between the cathode and the organic layer and preventing diffusion of the cathode material into the organic fluorescent layer.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (703) 308-2826. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

S.R.

Sikha Roy
Patent Examiner
Art Unit 2879

Ashok

ASHOK PATEL
PRIMARY EXAMINER